This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A method of producing a bisubstrate inhibitor in a cell, comprising introducing into the cell a N-bromoacetylated acetyl acceptor substrate or a N-chloroacetylated acetyl acceptor substrate for an acetyltransferase present in the cell.

2. (original) The method of claim 1, wherein the acetyltransferase is produced by the cell.

3. (original) The method of claim 1, wherein the acetyltransferase is produced in a cell from an exogenous nucleic acid encoding the acetyltransferase.

4. (cancelled)

5. (previously presented) The method of claim 1, wherein the acetyltransferase is arylalkylamine N-acetyltransferase (AANAT) and the acetyl acceptor substrate is selected from the group consisting of N-bromoacetyltryptamine, N-bromoacetylserotonin, N-bromoacetylphenylethylamine, N-bromo-acetyl-methoxytryptamine, N-bromoacetyltyramine, N-chloroacetyltryptamine, N-chloroacetylserotonin, N-chloroacetylphenylethylamine, N-chloro-acetyl-methoxytryptamine and N-chloroacetyltyramine.

6. (previously presented) A method of inhibiting the activity of an acetyltransferase in a cell, comprising introducing into the cell a N-bromoacetylated acetyl acceptor substrate or a N-chloroacetylated acetyl acceptor substrate for an acetyltransferase present in the cell under conditions whereby a bisubstrate inhibitor will be produced, thereby inhibiting the activity of the acetyltransferase in the cell.

7. (original) The method of claim 6, wherein the acetyltransferase is produced by the cell.

8. (original) The method of claim 6, wherein the acetyltransferase is produced in a cell from an exogenous nucleic acid encoding the acetyltransferase.

9. (cancelled)

10. (previously presented) The method of claim 6, wherein the acetyltransferase is arylalkylamine N-acetyltransferase (AANAT) and the alkylating derivative of the acetyl acceptor substrate is selected from the group consisting of N-bromoacetyltryptamine, N-bromoacetylserotonin, N-bromoacetylphenylethylamine, N-bromo-acetyl-methoxytryptamine, N-bromoacetyltyramine, N-chloroacetyltryptamine, N-chloroacetylserotonin, N-chloroacetylphenylethylamine, N-chloro-acetyl-methoxytryptamine, and N-chloroacetyltyramine.

11. (previously presented) A method of inhibiting melatonin production in a cell which produces melatonin, comprising introducing into the cell a N-bromoacetylated acetyl acceptor substrate or a N-chloroacetylated acetyl acceptor substrate of AANAT which is selected from the group consisting of N-bromoacetyltryptamine, N-bromoacetylserotonin, N-bromoacetylphenylethylamine, N-bromo-acetyl-methoxytryptamine, N-bromoacetyltyramine, N-chloroacetyltryptamine, N-chloroacetylserotonin, N-chloroacetylphenylethylamine, N-chloro-acetyl-methoxytryptamine, and N-chloroacetyltyramine.

12. – 14. (cancelled)

15. (previously presented) A cell comprising a bisubstrate inhibitor, wherein the bisubstrate inhibitor comprises a N-bromoacetylated acetyl acceptor substrate or a N-

chloroacetylated acetyl acceptor substrate for an acetyltransferase present in the cell and CoA.

16. (original) The cell of claim 15, wherein the acetyltransferase is produced by the cell.

17. (previously presented) The cell of claim 15, wherein the acetyltransferase is produced in the cell from an exogenous nucleic acid encoding the acetyltransferase.

18. (cancelled)

19. (previously presented) The cell of claim 15, wherein the acetyltransferase is arylalkylamine N-acetyltransferase (AANAT) and the acetyl acceptor substrate is selected from the group consisting of N-bromoacetyltryptamine, N-bromoacetylserotonin, N-bromoacetylphenylethylamine, N-bromo-acetyl-methoxytryptamine, N-bromoacetyltyramine, N-chloroacetyltryptamine, N-chloroacetylserotonin, N-chloroacetylphenylethylamine, N-chloro-acetyl-methoxytryptamine, and N-chloroacetyltyramine.

20. (original) The cell of claim 19, wherein the cell is selected from the group consisting of a pineal gland cell and a retinal cell.